\

**January/FY06**

# LOUISIANA ARMY AMMUNITION PLANT

Doyline, Louisiana

## Army Defense Environmental Restoration Program Installation Action Plan

Final April 2006

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# Statement of Purpose

The purpose of the Installation Action Plan (IAP) is to outline the total multi-year Installation Cleanup Program for an installation. The plan identifies environmental cleanup requirements at each site or area of concern, and proposes a comprehensive, installation-wide approach, with associated costs and schedules, to conduct investigations and necessary remedial actions.

In an effort to coordinate planning information between the restoration manager, US Army Environmental Center (USAEC), and Louisiana Army Ammunition Plant, an IAP was completed. The IAP is used to track requirements, schedules and tentative budgets for all major Army installation cleanup programs.

All site-specific funding and schedule information has been prepared according to projected overall Army funding levels and is, therefore, subject to change.

The following agencies contributed to the formulation and completion of this Installation Action Plan:

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**Company/Installation/Branch**
US Army Environmental Center

Engineering & Environment Inc. for USAEC

Louisiana Army Ammunition Plant

# Acronyms & Abbreviations

| | |
|---|---|
| **AEDB-R** | Army Environmental Database - Restoration |
| **AOC** | Area of Concern |
| **ARAR** | Applicable Requirement/Appropriate Requirement |
| **ATSDR** | Agency for Toxic Substances and Disease Registry |
| **CERCLA** | Comprehensive Environmental Response Compensation and Liability Act |
| **COE** | Corps of Engineers |
| **CPG** | Central Proving Ground |
| **CTC** | Cost-to-Complete |
| **CTT** | Closed, Transferred and Transferring |
| **DD** | Decision Document |
| **Eco** | Ecological |
| **ER,A** | Environmental Restoration, Army (formerly DERA) |
| **ES&E** | Environmental Science and Engineering |
| **ETA** | Engineering Technologies Associates, Inc. |
| **FFA** | Federal Facilities Agreement |
| **FS** | Feasibility Study |
| **FY** | Fiscal Year |
| **HRR** | Historical Records Review |
| **HQDA** | Headquarters, Department of Army |
| **IAP** | Installation Action Plan |
| **IRA** | Interim Remedial Action |
| **IRP** | Installation Restoration Program |
| **K** | thousand |
| **LA** | Louisiana |
| **LAAP** | Louisiana Army Ammunition Plant |
| **LAAAP** | Louisiana Army Ammunition Plant (AEDB-R designation) |
| **LAP** | Load, Assemble, and Pack |
| **LDEQ** | Louisiana Department of Environmental Quality |
| **LTM** | Long-term Management |
| **MC** | Munitions Constituents |
| **MD** | Maryland |
| **MEC** | Munitions and Explosives Constituents |
| **MMRP** | Military Munitions Response Program |
| **NFA** | No Further Action |
| **NPL** | National Priority List |
| **OU** | Operable Unit |
| **PA** | Preliminary Assessment |
| **PBC** | Performance-Based Contract |
| **RA** | Remedial Action |
| **RA(C)** | Remedial Action (Construction) |
| **RA(O)** | Remedial Action (Operation) |
| **RAC** | Risk Assessment Score |
| **RC** | Response Complete |
| **RCRA** | Resource Conservation and Recovery Act |
| **RD** | Remedial Design |
| **RDX** | Cyclotrimethylenetrinitramine |

# Acronyms & Abbreviations

| | |
|---|---|
| **REM** | Removal |
| **RI** | Remedial Investigation |
| **RIP** | Remedy-in-Place |
| **ROD** | Record of Decision |
| **RRSE** | Relative Risk Site Evaluation |
| **SAIC** | Science Applications International Corporation |
| **SARA** | Superfund Amendments and Reauthorization Act |
| **SI** | Site Inspection |
| **SVOC** | Semi-Volatile Organic Compounds |
| **TCE** | Trichloroethane |
| **TRC** | Technical Review Committee |
| **USACE** | US Army Corps of Engineers |
| **USAEC** | US Army Environmental Center |
| **USATHAMA** | US Army Toxic and Hazardous Material Agency |
| **USEPA** | US Environmental Protection Agency |
| **UST** | Underground Storage Tank |
| **UXO** | Unexploded Ordnance |
| **VOC** | Volatile Organic Compounds |

# Installation Information

***Installation Locale:*** LAAP is located approximately 22 miles east of Shreveport, Louisiana on U. S. Highway 80 and consists of 14,974 acres of land measuring approximately nine miles east to west and three miles north to south. LAAP is currently inactive; during previous intense production periods, this employment has exceeded 10,000. The area surrounding LAAP is primarily rural with the town of Minden (population 14,697) two miles northeast of LAAP, the village of Doyline (population 896) adjacent to the southern boundary, and the Goodwill community to the north.

***Installation Mission:***

- Layaway and maintenance of projectile metal parts manufacturing facility.
- Facility use contract allows commercial applications of facilities.

***Lead Organization:***

Installation Management Agency, Southwest Region

***Lead Executing Agencies:***

- Investigation Phase Executing Agency: US Army Environmental Center, Installation Restoration Division, Branch B
- Remedial Design/Action Phase Executing Agency: US Army Corps of Engineers, Fort. Worth District.

***Regulatory Participation:***

**Federal:** US Environmental Protection Agency, Region VI
**State:** Louisiana Department of Environmental Quality Abandoned Sites Division

***NPL Status:***

- NPL Installation/March 1989
- Federal Facility Agreement / February 1989

***Projected Date for Construction Completion:*** 2006

***Projected Date for NPL Removal:*** 2007

***TRC Status:*** Louisiana Army Ammunition Plant established a Technical Review Committee in February 1989. Currently none of the local authorities or local citizens has expressed interest in attending the TRC meetings.

***Program Summaries:***

***IRP***

Contaminants of Concern: Metals, Organics, Explosives
Media of Concern: Groundwater
Estimated date for RIP/RC: 2005/2014
Funding to Date (thru FY05): $69,882K
Current Year Funding (FY06): $409K
Cost-to-Complete (FY07+): $731K

***MMRP***

Contaminants of Concern: MEC
Media of Concern: Soil, Groundwater
Estimated date for RIP/RC: 2009/2009
Funding to Date (thru FY05): $244K
Current Year Funding (FY06): $0K
Cost-to-Complete (FY07+): $1,417K

# Cleanup Program Summary

***Historic Activity:***

Louisiana Army Ammunition Plant (LAAP) property has been transferred to the State of Louisiana in December 2005 Recent manufacturing history includes the production of shell metal parts including 155 millimeter projectiles, and to Load, Assemble, Pack (LAP) ammunition items including mortars, mine clearing line charges, and ADAM projectiles.

The United States government acquired 15,868 acres of land in 1941 for construction of LAAP. Operation began in 1942, with eight ammunition lines and one ammonium nitrate graining plant. During World War II, LAAP was operated under contract with Silas Mason, Co., producing approximately 65 different ammunition items. In 1945, the plant was placed in standby status.

LAAP was reactivated in February 1951 in support of the Korean conflict. All ammunition-loading lines were operational under the responsibility of Remington Rand, Inc. Remington Rand, Inc. also designed a forging and machining plant for manufacturing 155mm projectile metal parts.

Ammunition production was suspended in February 1958 when the plant was again placed in standby status. The plant was reactivated in 1962 in support of the Vietnam conflict with Sperry Rand Corporation as the operating contractor. Four production areas were reactivated for classified ammunition items. In 1975, Thiokol Corporation assumed the contract from Sperry Rand Corporation. All production ceased in October 1994. The installation is currently in modified caretaker status.

The Army is investigating waste disposal areas, manufacturing areas, burning grounds, and testing areas for any detrimental environmental impact by implementing its environmental response authority under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)/Superfund Amendments and Reauthorization Act (SARA).

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***IRP***

- Prior Year Progress: A draft final Human Health and Eco Risk Assessment has been submitted to the regulators and comments have been received. Draft final comments have been addressed and a conference call to discuss the Risk Assessments was scheduled in May 2005. Work progressed on the FS. Field sampling to assess the natural attenuation of the groundwater has been completed.
- Future Plan of Action: The current performance-based contract is scheduled to achieve remedy in place/response complete by September 2006.

### *MMRP*

- Prior Year Progress:  Site Plan is completed. A draft work plan for the RI was completed in March 2005 and comments have been received.
- Future Plan of Action:  The final work plan is being developed. The completion of the MMRP is currently scheduled for 2009.

# LOUISIANA ARMY AMMUNITION PLANT

## Installation Restoration Program

# IRP Summary

***Total AEDB-R IRP Sites/Sites RC***: 10/9

***AEDB-R Site Types:***

| | |
|---|---|
| 3 Disposal Pit/Drywell | 2 Landfills |
| 2 Contaminated Groundwater | 1 Spill Site Area |
| 1 Explosive Ordnance Disposal Area | 1 Burn Area |

***Contaminants of Concern:*** Metals, Organics, Explosives

***Media of Concern:*** Groundwater

***Completed REM/IRA/RA:***

FY90 -- IRA - Soil Incineration at Area P Lagoon FY90, $ 33.050K

***Total IRP Funding:***

| | |
|---|---|
| Prior Years (thru FY05): | $ 69,882K |
| Current Year Funding (FY06): | $ 409K |
| Future Requirements (FY07+): | $ 731K |
| Total: | $ 71,022K |

***Duration of IRP:***

Year of IRP Inception: 1988
Year of IRP RIP: 2005
Year of IRP Completion (including LTM): 2014

# IRP Contamination Assessment

Past operations at approximately a dozen manufacturing, loading, and support facilities, has resulted in the generation of explosive and metal contaminated waste which was disposed of at several locations on the installation. An initial Installation Assessment, completed in May 1978, indicated heavy explosive contamination in plant loading and disposal areas, and heavy metal contamination in the unlined pond of M-4. Between 1979 and 1980, the US Army Environmental Hygiene Agency investigated the shallow aquifer. The investigation revealed that the shallow aquifer was contaminated with explosive compounds; however, the deepest aquifer, the source of drinking water on and off-post, was not contaminated.

The US Environmental Protection Agency (USEPA) Region VI, the Louisiana Department of Environmental Quality (LDEQ), and the Army signed a Federal Facilities Agreement (FFA) in February of 1989. This agreement sets deadlines, objectives, responsibilities, and procedural framework for implementing the IRP at LAAP.

In 1982, the US Army Toxic and Hazardous Materials Agency (USATHAMA), now the Army Environmental Center (USAEC), performed a preliminary environmental survey at LAAP. The survey concluded that significant contamination of the shallow aquifer had occurred in area P, BG8 Landfill/Lagoon, and LF3.

The installation was proposed for the National Priorities List (NPL) in October of 1984 due to groundwater contamination from the Area P pink water lagoons. LAAP was placed on the NPL with a Hazard Ranking Fiscal Year 1997 of 23.8.

A Remedial Investigation (RI) in 1985 found detectable levels of explosives in four areas and low levels in the monitoring wells at the plant's southern boundary. Following an EPA Region VI site inspection in 1987, LAAP was notified that three more sites were considered Operable Units (OUs) and would require further investigation. In 1987, an undated RI task indicated that explosive contamination was migrating off the LAAP southern boundary.

In 1989, a drinking water well monitoring program was established. The public drinking water supply wells closest to LAAP's north and south boundaries as well as LAAP's drinking water wells were sampled once per month for six months. Detectable levels of RDX, 2,4-DNT, HMX Tetryl were found for one sampling event; however, the inconsistency of results indicated that contamination was introduced through incorrect field sampling procedures or equipment. Monitoring was continued for another six months; no documented contamination of drinking water was found. Although no documented contamination of drinking water wells was found either on - or off-post, the Army is continuing to monitor on a less frequent basis, in agreement with the federal and state regulators.

A Remedial Investigation/Feasibility Study (RI/FS) identified seven initial Areas of Concern (AOCs) in 1987. One of these areas, Area P (LAAAP-01), was determined sufficiently contaminated to require an interim remedial action (IRA) due to explosives-contaminated soil and water. Over 100,00 cubic yards of explosives-contaminated soil and over

50,000,000 gallons of wastewater were treated in 1989 and 1990. With the completion of the IRA at Area P, the Army has been negotiating a no further action (NFA) Record of Decision (ROD) for these seven areas. A five-year review of the Interim Remedial Action at Area P was completed in FY94. A Record of Decision was approved and signed in November 1996 for the seven areas of concern supporting no further action (NFA) at these seven areas for the soil sources. Groundwater for the entire installation (including the nine AOCs) was placed in one operable unit in March 1995.

In 1993, a separate remedial Investigation was begun at the Y-Line Chromium Etching Facility to identify the source and extent of contamination. This additional investigation was begun due to the visual discovery of chromium contamination around this facility. Fieldwork was completed in Nov 93; the RI report concluded that NFA is required for the soil sources at the Y-Line. Further groundwater characterization is required to delineate a TCE groundwater plume.

A Remedial Investigation for the ammunition production areas was begun during 1994 to also identify the source(s) and extent of contamination for these areas. This additional investigation was begun due to red discoloration of the surface soil, indicating TNT contamination.

Field work for a remedial investigation of the ammunition production facilities began in November 1994. The field work for a separate Remedial Investigation at the Area Y Chromium Etching Facility was completed in Nov 96. The report concluded again that NFA is required for the soils/sources at the Y-Line. Further investigation is required to delineate a solvents plume in the groundwater.

Monitoring of drinking water wells both on LAAP and in towns adjacent to LAAP has been conducted. Sampling in 1997 yielded non-detect results for all drinking water wells. The contamination is not moving, does not pose a risk to human health and it seems natural attenuation will be the remedy.

All sites are eligible for funding due to the stipulations cited under the Federal Facility Agreement signed by the Army and the regulators for this NPL installation.

This investigative history at LAAP has determined that Installation Restoration Program (IRP) efforts should focus on seven areas of concern, the Y-Line facility, and the ammunition production areas. The sites are designated by their AEDB-R identification number. The seven Areas of Concern are identified as LAAAP-01 thorough LAAAP-07; the Y-Line facility is identified as LAAAP-08, the ammunition production areas and testing areas as LAAP 09, and the total installation groundwater as LAAP 10. These are discussed individually in the Site Descriptions section.

***IRP Cleanup Exit Strategy:*** In 2004, a Performance-based Contract (PBC) was awarded to remediate LAAP 10. Site will be transferred to the state of Louisiana in 2011 and the state will assume responsibility for LTM of the site.

# Previous Studies

### 1978

- Installation Assessment of Louisiana Army Ammunition Plant (LAAP), Record evaluation Report No. 120 by Department of the Army, Office of the Project Manager for Chemical Demilitarization and Installation Restoration, Aberdeen Proving Ground, MO for LAAP, May.

### September 1979 – March 1980

- Geohydrologic Consultation No. 31-24-0152-80, LAAP, Shreveport, Louisiana by United States Army Environmental Hygiene Agency, Aberdeen Proving Ground, MD for Commander, US Army Materiel Development and Readiness Command, HQDA (DAEN-MPO-U), HQDA (DAEN-ZCE), Superintendent, Academy of Health Sciences (HAS-IPM).

### 1982

- LAAP, Geotechnical Report Interim Report Number 2 by Envirodyne Engineers, Inc., 12161 Lackland Road, St. Louis, MO 63141 for LAAP, P. O. Box 30058, Shreveport, LA 71130 and Commander, US Army Toxic and Hazardous Materials Agency (USATHAMA), Aberdeen Proving Ground, MD, March.
- (LAAP, Contamination Analysis Report by Envirodyne Engineers, Inc. for LAAP Commander, USATHAMA, May.
- LAAP, Final Report by Envirodyne Engineers, Inc. for LAAP, Commander, USATHAMA, September.
- Analysis of Alternative Measures by Envirodyne Engineers, Inc. for LAAP Commander, USATHAMA, October

### 1986

- Preliminary Assessment LAAP, Shreveport, Louisiana LAO 21382053 by A.T. Kearney, Inc., Alexandria, VA and Harding Lawson Associates, Houston, Texas for EPA Region VI, June.
- Remedial Investigation at LAAP, Final Report AO11 Volume II – Appendices part A by Environmental Science & Engineering, Inc. (ES&E) for USATHAMA, Assessments Division, Aberdeen Proving Ground, MD, December.
- Remedial Investigation at LAAP, Final Report AO11, Volume II – Appendices Part B by ES&E for USATHAMA, December.

### 1987

- Remedial Investigation at LAAP, Final Report AO11 by ES&E for USATHAMA, January 30.
- Public Notice of Interim Response Action by US Army for Public, August.
- Interim Response Action (IRA) remedial Investigation (RI), Area P Lagoons by IT for USATHAMA, August.
- Feasibility Study, Final Sampling and Analysis Plan by IT for USATHAMA, August.
- Interim Response Action (IRA), Feasibility Study, Area P Lagoons by International technology Corporation (IT) for USATHAMA.
- Public Involvement and Response Plan, Interim Response Action – Area P Lagoons by IT for LAAP, October.

- Interim Response Action (IRA) Decision Memorandum, Area P Lagoons by IT for USATHAMA, December.
- Decision Memorandum for Interim Response action at Area P for LDEQ and US Army.
- Installation Restoration Incineration Program Description Interim Response Action, Part 1, Remedial Action Plan by IT for Louisiana Department of Environmental Quality (LDEQ) and US Environmental Protection Agency (USEPA) Region VI, December.
- Installation Restoration, Incineration Program Description, Interim Response Action, Part 2, Incineration Plan by IT for LDEQ and EPA Region VI, December.
- Installation Restoration Incineration Program Description Interim Response Action, part 3, Trial Burn Data by IT for LDEQ and EPA Region VI, December.
- Public Involvement and Response Plan, Interim Response Action, Area p Lagoons by IT for LAAP, February.

**1988**

- Demand for Action by LDEQ for LAAP, April.
- Remedial Design/Remedial Action (RD/RA), Volume I: Work Plan, Interim Remedial Action at LAAP Area P Lagoons by IT and LAAP for LDEQ, June.
- RD/RA Work Plan, Volume II: Appendix A, Safety, Health and Emergency Response Plan, Interim Remedial Action at LAAP Area P Lagoons by IT and LAAP for LDEQ, June.
- RD/RA Work Plan, Volume III: Appendix B, Spill Prevention, Control, and Countermeasure Plan, Interim Remedial Action at LAAP Area P Lagoons by IT and LAAP for LDEQ, June.
- RD/RA Work Plan, Volume IV: Appendix C, Quality Assurance Project Plan, Interim Remedial Action at LAAP Area P Lagoons by IT and LAAP for LDEQ, June.
- Preliminary Health Assessment by Office of Health Assessment, Agency for Toxic Substances and Disease Registry (ATSDR) for LAAP, July.
- Revised Public Involvement and Response Plan, Interim Response Action, Area P Lagoons by IT for LAAP, September.
- Task Order – 8, Field Demonstration – Composting of Explosives – Contaminated Sediments at LAAP by Weston, Inc. for USATHAMA, September.
- Evolutionary Enhancements to the HTTS –1 by IT for LAAP, October.

**1989**

- Letter granting permission to incinerate soil by LDEQ for Commander, LAAP, January.
- Post Remedial Investigation, Resampling Effort by Robin Lyn Stein USATHAMA for LAAP, January.
- Federal Facility Agreement (FFA) between the US EPA, US Army, and LDEQ by EPA, US Army, LDEQ for Internal, February.
- News Release regarding EPA, US Army and LDEQ signing a Federal Facility Agreement for Federal Superfund cleanup activities at LAAP by USEPA, LAAP and LDEQ for Public, February.
- Delivery Order 8, LAAP, updated Remedial Investigation (Two volumes) by Weston for USATHAMA, April.
- Public Involvement and Response Plan for LAAP by Hunter/ES&E for USATHAMA, July.

- Proposal to Revise the Excavation Criteria for the LAAP Area P Interim Response Action by LAAP for USATHAMA, October.

**1990**

- Feasibility Study, Final Sampling and Analysis Plan, Data Item A004 by ES&E for USATHAMA, May.
- Feasibility Study, Final Sampling and Analysis Plan, Volume 2, Quality Assurance Project Plan, Data Item A006 by ES&E for USATHAMA, May.
- Feasibility Study, Final Health and Safety Plan, Data Item A009 by ES&E for USATHAMA, May.
- Feasibility Study, Final Feasibility Study Work Plan, Data Item A005 by ES&E for USATHAMA, May.
- Closure Plan for the Interim Response Action at the Area P Lagoons by USACE, Fort Worth District and Toxic and Hazardous Materials Agency for Commander, LAAP, August.

**1991**

- Technical Support Services for Installation Restoration Program, Contract DAAA 15-89-D-0009, Task 2 – Prepare Ground Water Model for Selected Sites at the Louisiana Army Ammunition Plant – Final Report by Engineering Technologies Associates, Inc. for USATHAMA, January.
- Assessment of Applicable or Relevant and Appropriate Requirements (ARARs) for LAAP by Chemical Hazard Evaluation Program, Health and Safety research Division, Oak Ridge National Laboratory for USATHAMA, July.
- LAAP Proposed Basis for the Feasibility Study for ESE by USATHAMA, September.

**1992**

- Feasibility Study, LAAP, Final Comprehensive Remedial Investigation, Vol. 1 through 7 by ESE for USATHAMA, February.
- Feasibility Study, LAAP, Final Comprehensive Risk Assessment, Volumes 1 and 2 by ESE for USATHAMA, February.
- Maintenance Plan, LAAP, Former Area P Lagoons by USATHAMA for LAAP.

**1993**

- Final Technical Work Plan, LAAP Drinking Water Monitoring, Volume I by Woodward/Clyde Federal Facilities for US Army Environmental Command (USAEC), January.
- Final Technical Remedial Investigation Work Plan, Management and Resource Utilization Plan, LAAP (Volumes II, III, IV) by Woodward/Clyde Federal Facilities, January.
- Revised Final Feasibility Study Report for LAAP, Shreveport, Louisiana by USAEC by ESE, October.

# Previous Studies

## 1994

- Final Data Management Plan, Five-Year Review of Interim Remedial Action at Former Area P Lagoons, LAAP, Shreveport, Louisiana by Science Applications International Corporation (SAIC) to US Army Environmental Center (USAEC) formerly USATHAMA), February.
- Final Accident Prevention Health and Safety Plan (Five-Year Review of Interim) by SAIC for USAEC, February.
- Final Quality Assurance Project Plan (Five-Year Review of Interim) by SAIC for USAEC, February.
- Final Project Management Plan (Five-Year Review of Interim) by SAIC for USAEC, February.
- Final Field Sampling Design Plan (Five-Year Review of Interim) by SAIC for USAEC, February.
- Final, LAAP Drinking Water Monitoring Report by Woodward-Clyde Federal Services, Inc. for USAEC, May.
- Final Proposed Remedial Action Plan for ESE by USAEC, May.
- Final Technical Work Plan Addenda for Drinking Water Monitoring and Monitor Well Abandonment at LAAP by Geophex for USAEC, May.
- Field Sampling, QA, Safety Work Plan, Final by IT for US Army Environmental Center (USAEC), December.

## 1995

- Letter requesting a single groundwater unit for all of LAAP by EPA for LAAP, March.
- Draft Soil. Source Operable Unit, Proposed Remedial Action Plan for ES&E by US Army Environmental Center (USAEC), May.
- Final Report for Drinking Water Monitoring and Monitor Well Abandonment by Geophex, Ltd. For US Army Environmental Center (USAEC), September.
- Final Soil Source Operable Unit, Proposed Remedial Action Plan for ESE by US Army Environmental Center (USAEC), December.
- Final Five-Year Review Report, Five-Year Review of Interim Remedial Action at Former Area P Lagoons by SAIC for US Army Environmental Center (USAEC), December.
- Undated brochures.  Notice of Public Hearings by USATHAMA for Public.

## 1996

- Final Remedial Investigation Y-Line Chromium Etching Facility, LAAP, Shreveport, Louisiana; Volume III, Version 1.3, Appendixes, Appendix H by Woodward-Clyde Federal Services, Inc. for US Army Environmental Center (USAEC), June.
- Revised Community Relations Plan for Louisiana Army Ammunition Plant by Environmental Science & Engineering, Inc. for US Army Environmental Center (USAEC), August.
- Final Record of Decision (ROD) for Louisiana Army Ammunition Plant, Seven Soil/Source Operable Units (OU) Shreveport, Louisiana by Environmental Science & Engineering, Inc. (ES&E) for US Army Environmental Center (USAEC, September.
- Draft Data Evaluation Report for the Groundwater Operable Unit, LAAP, Shreveport, Louisiana, Volume 1 – Text, Figures, and Tables by Environmental Science & Engineering, Inc. (ES&E) for US Army Environmental Center (USAEC), February.

# Previous Studies

**1997**

- Draft Data Evaluation Report for the Groundwater Operable Unit, LAAP, Shreveport, Louisiana, Volume 2 –Appendices by Environmental Science & Engineering, Inc. (ES&E) for US Army Environmental Center (USAEC), February.
- Initial Draft, Remedial Investigation and Risk Assessment Report for Load/Assemble/Pack Line C by IT Corp. for US Army Industrial Operations Command (USIOC), July.
- Initial Draft; Remedial Investigation and Risk Assessment Report for Load/Assemble/Pack Line C; Tables by IT Corp. for US Army Industrial Operations Command (USIOC), July.
- Initial Draft, Remedial Investigation Report for the Preliminary Groundwater Site Investigations at Eight Load/Assemble/Pack Lines and Three Test Areas LAAP by IT Corp. for US Army Industrial Operations Command (USIOC), July.

**1998**

- Final Report on Contamination Operations (Area P) by IT for USATHAMA, September.
- Environmental Assessment, Proposed Inactivation of the LAAP, Shreveport, Louisiana and of the Scranton Army Ammunition Plant, Scranton, Pennsylvania by Department of the Army for US Army Materiel Command, Alexandria, Virginia, October.
- Quality Assurance Project Plan; Remedial Investigation and Feasibility Study for the Site-wide Groundwater Operational Unit; LAAP, Shreveport Louisiana by ERM Program Management Company for USAEC, January.
- Screening-Level Ecological Risk Assessment for Load/Assemble/Pack Line C by IT Corporation for US Army Industrial Operations Command (USIOC), April.
- Follow-On Investigation of Y-Line by Engineering Technologies Associates, Inc. (ETA) for US Army Industrial Operations Command (USIOC), May.
- Proposed Plan (Draft) for the Y-Line Facility Soils by Engineering Technologies Associates, Inc (ETA) for US Army Industrial Operations Command (USIOC), May.
- Technical Memorandum, Refinement of Screening-Level Ecological Risk Assessment for Load/Assemble/Pack Line C, LAAP by IT Corp. for US Army Industrial Operations Command (USIOC), October.
- Follow-on Remedial Investigation Work Plan, LAAP, Doyline, Louisiana by Program Management Company (PMC) for US Army Industrial Operations Command (USIOC), September.

**1999**

- Revised Technical Memorandum; Refinement of Screening-Level Ecological Risk Assessment for Load/Assemble/Pack Line C, LAAP by IT Corp. for US Army Industrial Operations Command (USIOC), February.
- Proposed Plan (Final) for the Y-Line Facility Soils by Engineering Technologies Associates, Inc. (ETA) for US Army Industrial Operations Command (USIOC), May.

**2000**

- Record of Decision for the Y-Line Facility Soils, ETA Inc. for the US Army Operations System Command, USOSC, May.

# Previous Studies

## 2001

- Surface Water/Sediment Field Sampling Plan Addendum to the follow-on Remedial Investigation Workplan, PMC Environmental, September.
- Ecological Risk Assessment Screening Evaluation, PMC Environmental, September.
- Public Health Assessment for LAAP, EPA Facility ID: LA 213820533, ATDR, US HHS, September.

## 2005

- Remedial Investigation Comment Responses to the Follow-On Remedial Investigation for Soils and the Site-Wide Groundwater Operable Unit (PMC August 2003), January.
- RI approved Nov.2005 for sites 9&10
- Proposed Plan and public meeting complete Dec. 2005

# LOUISIANA ARMY AMMUNITION PLANT

## Installation Restoration Program Site Descriptions

# LAAP 10
# GROUNDWATER TOTAL INSTALLATION

## SITE DESCRIPTION

The Army, in consultation with the USEPA and the Louisiana Department of Environmental Quality (LDEQ), has split the shallow groundwater at the seven study areas into a separate operable unit. Therefore an operable unit for groundwater has been established for the total facility.

The PA was completed in 1997. Explosives and VOCs were not found at all 7 study areas.

A groundwater study (completed 1998) was done to determine if natural attenuation would be effective and acceptable. The results indicated that the RDX contaminants are leaving the groundwater to chemically bind to the soil.

The contamination is contained on post and it does not seem to be migrating. There are no receptors that pose a risk to human health.

In 2004, a Performance-based Contract was awarded to remediate this site. Soil removal was completed December 2005.

## STATUS

**REGULATORY DRIVER:**
CERCLA, Interagency Agreements (2 & 3 Party)

**RRSE:** High

**CONTAMINANTS OF CONCERN:**
Explosives, Metals, Organics

**MEDIA OF CONCERN:**
Groundwater

| PHASES | Start | End |
|---|---|---|
| PA | 197801 | 197805 |
| SI | 197801 | 197805 |
| RI/FS | 198511 | 200404 |
| RA(C) | 200405 | 200609 |
| LTM | 200609 | 201401 |

**RC: 200609**

## CLEANUP STRATEGY

Natural attenuation and long-term monitoring for the next 30 years is anticipated. The transfer of the LAAP to the state of Louisiana includes a memorandum that transfers the responsibility for groundwater monitoring over to the state after the five year review for LAAP 10 in 2011.

# IRP No Further Action Sites Summary

| AEDB-R# | Site Title | Documentation/Reason for NFA | NFA Date |
|---|---|---|---|
| LAAAP-01 | AREA P PINK WATER LAGOONS | All Required Cleanups Completed | 199307 |
| LAAAP-02 | BURNING GROUND NO. 5 | All Required Cleanups Completed | 199307 |
| LAAAP-03 | M-4 WASTE WATER LAGOON | Study Completed. No Cleanup Required. | 199307 |
| LAAAP-04 | BURNING GROUND NO. 8 LANDFILL | Study Completed. No Cleanup Required. | 199307 |
| LAAAP-05 | BURNING GROUND NO. 3 LANDFILL | Study Completed. No Cleanup Required. | 199307 |
| LAAAP-06 | OILY WASTE LANDFARM (AREAY) | Study Completed. No Cleanup Required. | 199307 |
| LAAAP-07 | BURNING GROUND NO. 8 PINK WATER LAGOONS | Study Completed. No Cleanup Required. | 199307 |
| LAAAP-08 | AREA Y CHROMIC ACID ETCHING FACILITY | All Required Cleanups Completed | 200003 |
| LAAP 09 | LOAD/ASSEMBLE/PACK AND TEST AREAS | Study Completed. No Cleanup Required. | 200308 |

***Initiation of IRP:*** 1978

### *Past Phase Completion Milestones*

**1978**
Preliminary Assessment, May

**1979**
Red Waste Pond Leachate Study, Jul
Geo-hydrologic study, Sep

**1980**
Off-Post Sampling, May

**1981**
Area P Sampling, Feb
LAAP Boundary Monitoring Well Survey, Feb
Area P Sampling, Jun

**1983**
LAAP Preliminary Contamination Survey, May

**1984**
Tech Demo for Incineration, Apr

**1985**
GW Quality Assessment Program Summary, Feb

**1987**
LAAP Contamination RI, Mar
RI for IRA, Apr
FS for IRA, Aug
Decision Memorandum for IRA, Dec

**1989**
Updated RI, Apr

**1990**
Closure Plant for IRA, Aug

**1992**
Comprehensive RI, Feb
Groundwater Model, Jun
Final Report on Decon Operations, Sep

**1993**
Revised Final FS, Sep

**1995**
Proposed Plan Soils/Sources (LAAAP-01,-07), Dec

**1996**
ROD Soils/Source (LAAAP-01,-07), Nov

**1999**
Proposal Plan Soils (LAAAP-08), May
ROD (LAAAP-08), May
Revised RI/FS GW, Sep

**2002**
FINAL RI (LAAP 09), Mar
FS (LAAP 09), Jun

**2005**
RA(C) (LAAP 10), Dec
LTM (LAAP 10), Jan

***Projected ROD/DD Approval Dates:*** None

***Completion Date of all RA(C) Activities***: 2005

***Scheduled Next Five-Year Reviews:*** 2006/2011

***Estimated Completion Date of IRP (including LTM phase):*** 2014

# LOUISIANA ARMY AMMUNITION PLANT
# IRP SCHEDULE CHART

| AEDB-R# | PHASE | FY07 | FY08 | FY09 | FY10 | FY11 | FY12 | FY13 | FY14 | FY15+ |
|---|---|---|---|---|---|---|---|---|---|---|
| LAAP 10 | LTM | | | | | | | | | |

***Prior Years Funding***
**FY78 - FY04: $66,195K**

| Year | Site Information | Expenditures | FY Total |
|---|---|---|---|
| FY05 | LAAP 10 | 3,687K | **$3,687K** |

**Total Prior Year Funding (thru FY05): $69,882K**

***Current Year Funds***

| Year | Site Information | Expenditures | FY Total |
|---|---|---|---|
| FY06 | LAAP 10 GW Monitoring | 409K | **$409K** |

**Total Current Year Funding: $409K**

***Total Future Requirements:*** **$731K**

***Total IRP Program Costs:*** **$71,022K**

# LOUISIANA ARMY AMMUNITION PLANT

## Military Munitions Response Program

# MMRP Summary

***Total AEDB-R MMRP Sites/Sites RC***: 2/0

***AEDB-R MMRP Site Types:***
1 Burn Area
1 Firing Range

***Contaminants of Concern:*** MEC

***Media of Concern:*** Soil

***Total MMRP Funding:***

| | |
|---|---|
| Prior Years (thru FY05): | $ 244K |
| Current Year Funding (FY06): | $ 0K |
| Future Requirements (FY07+): | $1,417K |
| Total: | $1,661K |

***DURATION OF MMRP:***
Year of MMRP Inception: 2002
Year of MMRP RIP/RC: 2009
Year of MMRP Completion (including LTM): 2009

# MMRP Contamination Assessment

### *MMRP Contamination Assessment Overview*

The Phase 3 Army Range Inventory was completed at the Louisiana Army Ammunition Plant in May 2003. The inventory identified two sites eligible for the MMRP. The Phase 3 inventory serves as the PA under CERCLA. The site assessments were completed in Dec 2005.

### *MMRP Cleanup Exit Strategy*

MC and MEC remedial actions are expected. LTM is not anticipated

**2002**

Final US Army Closed, Transferring, And Transferred Range/Site Inventory for Camp Minden (Louisiana Army Ammunition Plant), Louisiana, engineering-environmental Management, Inc., 31 October 2002

# LOUISIANA ARMY AMMUNITION PLANT

## Military Munitions Response Program Site Descriptions

# LAAP-001-R-01
# BURNING GROUNDS

## SITE DESCRIPTION

Burning Ground 5 is located in the eastern portion of the former LAAP installation and contains a 15.14-acre area with the potential for UXO. The property was used between 1941 and 1983 as a demolition and burning ground and electronic surface detonation was conducted until the facility received complaints from neighbors. At that point personnel began digging pits to bury material prior to demolition. There are also burning pads at this location and fuzes have been found in the area. Documentation of the types of munitions demolished at the site was not available. In 1989, the remedial investigation (RI) update revealed the presence of explosives in the soil with the highest concentrations near the center of Burning Ground 5.

## STATUS

**REGULATORY DRIVER:** CERCLA

**RAC:** 3 - Moderate Risk

**CONTAMINANTS:** MEC

**MEDIA OF CONCERN:** Soil

| PHASES | Start | End |
|---|---|---|
| PA | 200203 | 200305 |
| SI | 200404 | 200510 |
| RI/FS | 200610 | 200709 |
| RD | 200710 | 200803 |
| RA(C) | 200804 | 200909 |

**RC: 200909**

The IRP has been funded to address the soils at the site; however, the potential UXO area was not included in the remediation cost for Burning Ground 5. A 1996 Record of Decision (ROD) recommended no further action (NFA) for the soil; therefore, soil contamination is not a concern. The groundwater beneath the site is contaminated with MC, but the contaminated groundwater flows below most of the installation and contamination is attributed to multiple sources. Groundwater contamination at LAAP is being addressed under the IRP.

Burning Ground 5 is considered a closed UXO site because burning and demolition activities were formerly conducted on-site and there is the potential presence of UXO. A 6-ft chain link fence surrounds the UXO area.

## CLEANUP STRATEGY

MC and MEC remedial actions are expected. LTM is not anticipated

# LAAP-002-R-01
# CENTRAL PROVING GROUND

## SITE DESCRIPTION

The CPG, located in the northeastern portion of the former LAAP installation, covers approximately 17.5 acres and contains an approximately 0.5-acre area within the boundaries of the site with the potential for UXO. The CPG is a burning area with surface and subsurface remnants or ordnance present on the site. There are fuzes with some tetryl visible on the surface. The CPG was constructed in the early 1940s and was first used as a high-explosive disposal area. Disposal operations were discontinued in 1952 when Burning Ground 5 opened. Test area operations began in approximately 1950 and ended in 1994. Closure records are lacking. Documentation of the specific munitions disposed of and tested at the site was not available.

## STATUS

**REGULATORY DRIVER:** CERCLA

**RAC:** 3 - Moderate Risk

**CONTAMINANTS:** MEC

**MEDIA OF CONCERN:** Soil

| PHASES | Start | End |
|---|---|---|
| PA | 200203 | 200305 |
| SI | 200404 | 200510 |
| RI/FS | 200610 | 200709 |
| RD | 200710 | 200803 |
| RA(C) | 200804 | 200809 |

**RC: 200809**

Currently, this area is not being used for military activities; however, past activities on the site have resulted in some UXO (shell casings with explosives) on the ground. The CTT remedial activities at the CPG do not include the UXO in this 0.5-acre parcel of the CPG. The remaining 17 acres are under review with the RI program focusing on groundwater.

## CLEANUP STRATEGY

MC and MEC remedial actions are expected. LTM is not anticipated

# Schedule

***Initiation of MMRP:*** 2002

***Past Phase Completion Milestones***
**2003**
PA, All Sites, March

**2005**
SI, All Sites, October

***Projected ROD/DD Approval Dates:*** N/A

***Projected Construction Completion***: 2008

***Next Scheduled Five-Year Review:*** N/A

***Estimated Completion Date of MMRP (including LTM):*** 2008

# LOUISIANA ARMY AMMUNITION PLANT
# MMRP SCHEDULE CHART

| AEDB-R# | PHASE | FY07 | FY08 | FY09 | FY10 | FY11 | FY12 | FY13 | FY14 | FY15+ |
|---|---|---|---|---|---|---|---|---|---|---|
| LAAP-001-R-01 | RIFS | | | | | | | | | |
| | RD | | | | | | | | | |
| | RA(C) | | | | | | | | | |
| LAAP-002-R-01 | RIFS | | | | | | | | | |
| | RD | | | | | | | | | |
| | RA(C) | | | | | | | | | |

***Prior Years Funding***
**FY02-FY04: $244K**

**FY05: $0K**
**Total Funding Thru FY05: $244K**

***Current Year Funding***
**FY06: $0K**
**Total Funding FY06: $0**

***Total Future Requirements:*** **$1,417K**

***Total MMRP Program Costs:*** **$1,661K**

# Community Involvement

Louisiana Army Ammunition Plant established a Technical Review Committee in February 1989. Members include Army Environmental Center, Industrial Operations Command, US Environmental Protection Agency Region VI, and Louisiana Department of Environmental Quality. When the Technical Review Committee was established, members were solicited from Webster and Bossier Parish Governing bodies, local city governing bodies (Minden, Sibley, Doyline, Bossier City, Springhill) and local citizens. Letters announcing the TRC meeting dates are routinely mailed to the above. Currently none of the local authorities or local citizens has expressed interest in attending the TRC meetings.

Numerous public meetings have been conducted to emphasize LAAP environmental issues and responses. These meetings were publicized through news media, billboard ads and brochures. Little public interest has resulted with most of the meetings attracting only one or two citizens.

Louisiana AAP is committed to involving the public in its Installation Restoration Program and recognizes that interest in environmental efforts can change. Louisiana AAP will continue to mail out letters to the community leaders each time that a Technical Review Committee meeting is scheduled and solicit input from local citizens.

For now, the Technical Review Committee will continue to meet and plan remedial actions and strive to gain community interest by recruiting citizens that attend public meetings in support of the installation restoration program.